UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF PUBLIC ROADS
DIVISION OF AGRICULTURAL ENGINEERING

S. H. McCRORY, CHIEF

MONTHLY NEWS LETTER

WASHINGTON, JUNE 20, 1930

BEFORE THE NEXT NEWS LETTER IS ISSUED IT IS EXPECTED THAT THE WASHINGTON OFFICE OF THE DIVISION OF AGRICULTURAL ENGINEERING WILL HAVE BEEN MOVED TO THE OLD SOUTHERN RAILWAY BUILDING AT 13TH STREET AND PENNSYLVANIA AVENUE. MAIL SHOULD BE ADDRESSED AS HERETOFORE TO THE BUREAU OF PUBLIC ROADS - NOT TO THE OLD SOUTHERN RAILWAY BUILDING.

S. H. McCRORY IS ATTENDING THE ANNUAL MEETING OF THE A.S.A.E. AT MOLINE, ILL. (JUNE 16-19). HE HAS ACCEPTED THE INVITATION OF THE J. I. CASE THRESHING MACHINE CO. TO VISIT THEIR PLANT AT RACINE, WIS., IMMEDIATELY FOLLOWING THE MEETING AT MOLINE.

W. W. McLAUGHLIN LEFT BERKELEY MAY 29 FOR WASHINGTON, D. C., FOR CONFERENCES REGARDING FUTURE WORK, STOPPING EN ROUTE AT SAN ANTONIO, TEX. AFTER ATTENDING THE A.S.A.E. MEETING AT MOLINE, ILL. HE WILL SPEND A FEW DAYS IN COLORADO AND UTAH, RETURNING TO BERKELEY ABOUT JUNE 24.

E. M. MERVINE, FORMERLY OF IOWA STATE COLLEGE AND RECENTLY APPOINTED AS AGRICULTURAL ENGINEER, SPENT A SHORT TIME IN THE WASHINGTON OFFICE PREPARATORY TO BEGINNING AN INVESTIGATION OF MACHINERY USED IN GROWING SUGAR BEETS. HIS HEADQUARTERS WILL BE AT AMES, IOWA. J.W. RANDOLPH, ALSO RECENTLY APPOINTED AS AGRICULTURAL ENGINEER WILL HAVE CHARGE OF AN INVESTIGATION OF MACHINERY USED IN GROWING COTTON WITH HEADQUARTERS AT AUBURN, ALA. MR. RANDOLPH FORMERLY WAS WITH THE ALABAMA POLYTECHNIC INSTITUTE.

D. A. ISLER IS AT TALLULAH, LA. TESTING MACHINERY USED IN THE CONTROL OF THE COTTON BOLL WEEVIL. THIS WORK IS CARRIED ON IN COOPERATION WITH THE BUREAU OF ENTOMOLOGY.

J. T. BOWEN IS PREPARING TO START A SERIES OF TESTS ON A NUMBER OF DAIRY REFRIGERATION PLANTS THIS WORK TO BE CONDUCTED IN COOPERATION WITH THE BUREAU OF DAIRY INDUSTRY. THE INVESTIGATION IS EXPECTED TO FURNISH DATA FOR A BULLETIN OF THIS DEPARTMENT, RELATING TO THE COOLING OF MILK ON THE FARM.

MR. BOWEN IS A MEMBER OF THE REFRIGERATION COMMITTEE OF THE FEDERAL SPECIFICATIONS BOARD WHICH IS PREPARING STANDARD SPECIFICATIONS FOR REFRIGERATORS FOR THE USE OF THE VARIOUS GOVERNMENT DEPARTMENTS.

T.A.H. MILLER IS ASSISTING GEO. R. BOYD IN THE WORK OF APPRAISING PROPERTY WITHIN THE FLOODWAYS EMBRACED IN THE WAR DEPARTMENT PLANS FOR THE CONTROL OF THE MISSISSIPPI RIVER.

BEFORE BEGINNING THIS WORK MR. MILLER DELIVERED A PAPER AT THE TEACHING-METHOD SCHOOL WHICH WAS HELD AT THE UNIVERSITY OF ILLINOIS, URBANA FROM JUNE 11 TO 14. THIS SCHOOL WAS PROPOSED BY L. A. JONES AND PROMOTED BY THE COLLEGE SECTION OF THE A.S.A.E. THE PURPOSE OF THE SCHOOL IS TO INSTRUCT EXTENSION WORKERS IN THE BEST METHODS TO FOLLOW IN DISSEMINATING INFORMATION SECURED BY AGRICULTURAL ENGINEERING RESEARCH.

D. G. MILLER WILL DELIVER A PAPER AT THE MEETING OF THE AMERICAN SOCIETY FOR TESTING MATERIALS TO BE HELD AT ATLANTIC CITY THIS MONTH.

R. W. BAIRD HAS BEEN APPOINTED TO THE POSITION OF ASSOCIATE AGRICULTURAL ENGINEER, EFFECTIVE JUNE 5 AND REPORTED FOR DUTY AT TYLER, TEX., TO TAKE CHARGE OF THE SOIL EROSION EXPERIMENTAL FARM NEAR TYLER.

P. C. MCGREW, ASSOCIATE DRAINAGE ENGINEER, WHO HAS BEEN IN CHARGE OF THE TYLER SOIL EROSION EXPERIMENTAL FARM SINCE FEBRUARY 28 HAS BEEN TRANSFERRED TO GUTHRIE, OKLA. WHILE AT TYLER MR. MCGREW COMPLETED THE MAP OF THE FARM AND DIRECTED THE SPRING FARM OPERATIONS.

RAYMOND R. DRAKE, JUNIOR AGRICULTURAL ENGINEER, HAS COMPLETED THE INSTALLATION OF TEN 1-FOOT PARSHALL MEASURING FLUMES AND BRISTOL FLOAT WATER LEVEL RECORDERS ON THE HAYS PROJECT. HE REPORTS THAT THERE ARE PROSPECTS FOR A GOOD WHEAT YIELD ON THE FARM AT HAYS, KANSAS.

R. A. NORTON, ASSISTANT DRAINAGE ENGINEER, REPORTED A RAIN OF $5\frac{3}{4}$ INCHES FALLING IN ABOUT 4 HOURS ON MAY 10 WHICH CAUSED A NUMBER OF BREAKS IN TERRACES ON THE SOIL EROSION EXPERIMENTAL FARM NEAR TEMPLE, TEXAS. C. E. RAMSER, SENIOR DRAINAGE ENGINEER, MADE AN EXAMINATION OF THE TERRACES ON THE FARM AND FOUND THAT THE BREAKS WERE NOT CAUSED BY THE RUN-OFF WATER BETWEEN TERRACES BUT IN EACH CASE WERE DUE TO THE INADEQUATE SIZE OF DITCHES THAT SERVED THE DOUBLE PURPOSE OF TERRACE OUTLETS AND DIVERSION DITCHES TO INTERCEPT WATER FROM LAND LYING OUTSIDE THE BOUNDARIES OF THE FARM. A SIMILAR EXAMINATION OF BREAKS IN TERRACES ON THE TYLER FARM INDICATED THAT THEY ALSO WERE CAUSED BY OVERFLOWING OF TERRACE OUTLET DITCHES THAT WERE UNABLE TO HANDLE WATER FROM DRAINAGE AREAS OUTSIDE THE FARM AND FROM TIMBERED AREAS LYING ABOVE THE TERRACED FIELDS. THIS SEEMS TO BE A COMMON CAUSE OF TERRACE FAILURES THROUGHOUT OKLAHOMA AND TEXAS.

DURING THE PERIOD APRIL 26 TO MAY 17, INCLUSIVE, RAINS AGGREGATING 11.42 INCHES OCCURRED ON THE SOIL EROSION EXPERIMENTAL FARM NEAR GUTHRIE, OKLA. 3.22 INCHES, FELL ON MAY 3, MOST OF WHICH FELL IN ABOUT $1\frac{1}{2}$ HOURS. INTENSITIES OF 1.8 INCHES IN 25 MINUTES AND 0.5 INCHES IN 5 MINUTES OCCURRED ON THIS DATE. SOME OBSERVATIONS MADE DURING AND AFTER THIS RAIN INDICATED MUCH GREATER SEVERITY OF EROSION ON THE UNTERRACED AS COMPARED WITH THE TERRACED LAND AND ON THE GROUND FRESHLY PREPARED FOR COTTON AND KAFFIR CORN AS COMPARED WITH THE OATS-COVERED LAND. NEW GULLIES DEVELOPED ON THE UNTERRACED LAND AND WIND BLOWN SOIL THAT HAD PRACTICALLY FILLED MANY OLD GULLIES PRIOR TO THE RAINY PERIOD WAS WASHED OFF THE FIELDS WHILE ON THE TERRACED LAND THIS SOIL WAS SAVED BY THE TERRACES. BETWEEN 4 AND 5 TIMES AS MUCH SOIL WAS COLLECTED IN A SILT BOX BELOW A TERRACE WITH A 4-INCH FALL THAN BELOW A TERRACE WITH A 2-INCH FALL. DATA OF VALUE WAS OBTAINED ON THE HEIGHT REQUIRED FOR TERRACES 700 FT. LONG WITH VERTICAL SPACINGS OF 2, $3\frac{1}{2}$ AND 5 FEET. THE DEPTH OF WATER IN THE CHANNEL OF THESE TERRACES WAS ABOUT 10,

14 AND 17 INCHES RESPECTIVELY. MANY GULLIES OCCURRED BETWEEN TERRACES DUE PRINCIPALLY TO A FURROW LEFT BELOW THE TERRACES FILLING UP WITH WATER AND BREAKING OVER. GULLYING FROM THIS CAUSE DOES NOT OCCUR FOR ORDINARY RAINS. SUCH FURROWS ARE NOT LEFT BELOW THE TERRACES WHEN THEY ARE CONSTRUCTED BY MOVING ALL DIRT FROM THE UPPER SIDE AND SHOULD NOT BE PERMITTED TO REMAIN WHEN DIRT IS MOVED FROM BOTH SIDES.

YIELDS OF COTTON FROM TWO COMPARABLE TERRACED AREAS ON THE GUTHRIE FARM, ONE ON VIRGIN AND THE OTHER ON BADLY ERODED LAND SHOWED THAT 75% MORE LINT COTTON WAS PRODUCED ON THE VIRGIN THAN ON THE ERODED LAND. A SOIL SURVEY SHOWED THAT PRACTICALLY NO EROSION HAD OCCURRED ON THE VIRGIN LAND AND THAT 10 TO 16 INCHES OF THE SURFACE SOIL HAD BEEN REMOVED FROM THE ERODED LAND.

A PROGRAM OF THE SECOND ANNUAL SHORT COURSE ON FARM LAND VALUATION BY THE AGRICULTURAL ECONOMICS DEPARTMENT OF THE OKLAHOMA A & M COLLEGE IN COOPERATION WITH THE OKLAHOMA MORTGAGE BANKERS ASSOCIATION WAS HELD AT STILLWATER, OKLA. ON JUNE 9 AND 10. ON JUNE 11 A TRIP WAS MADE TO THE SOIL EROSION FARM AT GUTHRIE. TALKS ON EROSION AND TERRACING WERE MADE ON THE FARM AND AN INSPECTION OF ALL EXPERIMENTAL WORK WAS MADE.

F.O. BARTEL IS ON A TRIP OF INSPECTION OF THE VARIOUS SOIL EROSION FARMS.

R. B. GRAY MADE A FIVE DAY TRIP VIEWING FIELD CONDITIONS AND CONFERRED ON CORN BORER CONTROL EXPERIMENTAL WORK WITH OFFICIALS OF THE KENTUCKY, ILLINOIS, AND INDIANA EXPERIMENT STATIONS. HE ALSO CALLED AT THE CORNSTALK PRODUCT COMPANY'S PLANT AT DANVILLE, ILL.

MR. GRAY VISITED WOOSTER, OHIO, MAY 21 TO OBSERVE TESTS BEING MADE AT THE EXPERIMENT STATION FARM ON THE PLACEMENT OF FERTILIZER WITH CORN PLANTERS. EN ROUTE HE OBSERVED DRAINAGE DITCH CLEARING BY DYNAMITE BEING CONDUCTED NEAR BOWLING GREEN, OHIO, BY W. D. ELLISON.

HE SPENT MAY 27 TO 30 IN WASHINGTON ATTENDING THE MEETING OF THE ADVISORY COUNCIL ON RESEARCH ON MECHANICAL FARM EQUIPMENT, AND CONFERRING ON MATTERS PERTAINING TO FARM MACHINERY.

ON MAY 23 REPRESENTATIVES OF SEVERAL OF THE IMPLEMENT MANUFACTURERS WERE INVITED TO TOLEDO TO VIEW THE OPERATION OF A THREE-ROW CORNSTALK SHAVER ATTACHMENT FITTED ONTO A SINGLE ROW CULTIVATOR, A SPECIAL FOUR-BAR SIDE DELIVERY RAKE FOR RAKING STALKS INTO WINDROWS AND A STALK LOADER.

MESSRS. MERRILL AND GRAY MADE A SHORT TRIP JUNE 5 TO HOLGATE, OHIO, TO VIEW THE OPERATION OF AN AUTOMATIC BEET TRANSPLANTER.

O. K. HEDDEN CONDUCTED TESTS THIS SPRING IN THE ANTELOUPE VALLEY, CALIF. IN COOPERATION WITH THE BUREAU OF ENTOMOLOGY, ON A FIELD BURNER FOR COMBATTING THE PEA APHIS IN ALFALFA. HE REPORTS THIS BURNER, WHICH WAS DEVELOPED AT TOLEDO, AS HAVING PERFORMED THE BEST OF ANY SO FAR DEVELOPED FOR USE IN CONTROLLING THE ABOVE PEST. THE BURNER HAS BEEN RETURNED TO TOLEDO TO UNDERGO A FEW ALTERATIONS TO MAKE IT MORE ADAPTABLE TO FIELD CONDITIONS EXISTING WHERE IRRIGATION DIKES ARE SO NUMEROUS.

MESSRS. LEE A. STRONG AND L. H. WORTHLEY OF THE PLANT QUARANTINE AND CONTROL ADMINISTRATION, PROF. C. O. REED, OF COLUMBUS, AND MESSRS. WALLACE AND ULMAN, ENTOMOLOGISTS FROM INDIANA VIEWED THE FIELD WORK WITH CORN BORER MACHINERY ON MAY 7 AND 8 AT TOLEDO.

WALLACE ASHBY LEFT TOLEDO MAY 12 FOR CANTON, ILL. TO VIEW A CORN BORER PLOW BOTTOM CONSTRUCTED BY THE INTERNATIONAL HARVESTER CO., ACCORDING TO HIS SPECIFICATIONS. AFTER SEEING THIS BOTTOM WORK IN THE FIELD THERE HE PLANS ON TAKING IT TO URBANA FOR A FIELD TEST AND THEN BRING IT TO TOLEDO.

A. LINCOLN FELLOWS HAS COMPLETED HIS MANUSCRIPT FOR TECHNICAL BULLETIN ON IRRIGATION NEEDS AND POSSIBILITIES OF THE GREAT PLAINS.

WELLS A. HUTCHINS COMPLETED HIS REVISION OF DEPT. BUL. 1177, IRRIGATION DISTRICT OPERATION AND FINANCE, BRINGING DOWN TO DATE THE INFORMATION PRESENTED.

M. R. LEWIS SUBMITTED A PAPER ON THE DEVELOPMENT OF GROUND WATER, FOR PRESENTATION AT THE MEETING OF THE WESTERN SOCIETY OF SOIL SCIENCE TO BE HELD AT CORVALLIS, OREGON, JUNE 16 TO 18.

CARL ROHWER PREPARED A BRIEF PROGRESS REPORT ON THE EVAPORATION FROM OIL AND WATER SURFACES. IN MR. ROHWER'S RECENT STUDY TO DETERMINE THE EFFECT OF TEMPERATURE ON EVAPORATION, EXPERIMENTS WERE MADE ON WATER SURFACES THAT HAD BEEN COVERED WITH A LAYER OF OIL TO PREVENT EVAPORATION. IT WAS FOUND, HOWEVER, THAT THERE WAS A DEFINITE LOSS FROM THE TANK DUE EITHER TO THE EVAPORATION OF THE OIL OR OF THE WATER THROUGH THE LAYER OF OIL. SINCE COVERING THE WATER SURFACE WITH OIL HAS BEEN PROPOSED AS A FEASIBLE METHOD OF REDUCING THE EVAPORATION FROM LAKES AND RESERVOIRS, IT SEEMED DESIRABLE TO CONDUCT ADDITIONAL EXPERIMENTS TO DETERMINE JUST HOW EFFECTIVE AN OIL FILM IS IN REDUCING EVAPORATION FROM WATER SURFACES. THE PROGRESS REPORT ABOVE REFERRED TO GIVES THE RESULTS OF THESE SUPPLEMENTARY EXPERIMENTS.

PLANS AND SPECIFICATIONS FOR THE EARTH DAM AT THE GREAT PLAINS HORTICULTURAL STA. OF THE BUREAU OF PLANT INDUSTRY AT CHEYENNE WERE COMPLETED BY CARL ROHWER AND A. LINCOLN FELLOWS.

THE CALIFORNIA AGRICULTURAL EXPERIMENT STATION HAS PUBLISHED AS THEIR BULLETIN 489, THE REPORT PREPARED BY S.H. BECKETT, H. F. BLANEY, AND COLIN A. TAYLOR, ENTITLED "IRRIGATION WATER REQUIREMENT STUDIES OF CITRUS AND AVOCADO TREES IN SAN DIEGO COUNTY, CALIF., 1926 AND 1927".

W.W. MCLAUGHLIN GAVE AN INFORMAL TALK BEFORE THE REGULAR MONTHLY MEETING OF THE EAST BAY FEDERAL BUSINESS ASS'N, IN OAKLAND, MAY 22, DESCRIBING BRIEFLY THE ACTIVITIES OF THE DIVISION OF AGRICULTURAL ENGINEERING,

R. G. HEMPHILL HAS IMPROVED IN HEALTH SUFFICIENTLY TO LEAVE THE HOSPITAL AT SAN ANTONIO AND RETURN TO THE HOME OF HIS MOTHER IN SOUTH CAROLINA.

IN CONNECTION WITH HIS WATER SPREADING PROJECT, A.T. MITCHELSON ADDRESSED ABOUT 150 ATTENDANTS AT A FIELD DEMONSTRATION HELD UNDER THE AUSPICES OF THE LOS ANGELES COUNTY FARM BUREAU, ON THE SITE OF THE SPREADING GROUNDS. THE REASONS FOR SELECTING THAT PARTICULAR SITE WERE EXPLAINED, ALSO THE METHOD OF PROCEDURE, AND THE RESULTS OBTAINED IN INCREASING THE RATE OF PENETRATION OF WATER APPLIED, AND IN RAISING THE UNDERGROUND WATER TABLE. MARKED INTEREST IS BEING SHOWN IN THIS PROJECT, DUE TO THE IMPORTANCE OF WATER CONSERVATION IN THAT LOCALITY.

AMONG THE VISITORS AT THE BERKELEY OFFICE DURING THE PAST MONTH WERE A. F. CARDON OF WASHINGTON, D. C., CHIEF SUPERVISING APPRAISER OF THE FEDERAL LAND BANKS; THREE REPRESENTATIVES OF THE BRITISH GOVERNMENT - MR. THOS. BAXTER, MR. J. NEWMAN, AND MR. GEO. CLARK, J.P. WHO ARE MAKING A STUDY OF AGRICULTURAL INDUSTRIES OF THIS COUNTRY; AND TWO VISITORS FROM JAPAN - MR. S. HASHIMOTO, OF THE DEPARTMENT OF RECLAMATION, SEOUL, JAPAN, AND PROF. KURO KOBAYAKAWA OF MIYAZAKI COLLEGE OF AGRICULTURE, WHO ARE MAKING A TOUR OF THE WESTERN STATES FOR THE PURPOSE OF STUDYING AMERICAN IRRIGATION, IT BEING MR. HASHIMOTO'S EXPECTATION TO PRESENT A PAPER AT THE BELGIAN CONFERENCE OF RECLAMATION AT ANTWERP IN AUGUST.